84~150W Constant Voltage + Constant Current LED Driver ELG-150 series

■ Features
- Constant Voltage + Constant Current mode output
- Metal housing design with functional Ground
- Built-in active PFC function
- No load / Standby power consumption <0.5W
- IP67 / IP65 rating for indoor or outdoor installations
- Function options: output adjustable via potentiometer;
  3 in 1 dimming (dim-to-off); Smart timer dimming; DALI;
  Auxiliary DC output
- Typical lifetime>50000 hours
- 5 years warranty

■ Description
ELG-150 series is a 150W AC/DC LED driver featuring the dual mode constant voltage and constant current output. ELG-150 operates from 100~305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 91%, with the fanless design, the entire series is able to operate for -40℃ ~ +90℃ case temperature under free air convection. The design of metal housing and IP67/IP65 ingress protection level allows this series to fit both indoor and outdoor applications. ELG-150 is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system

■ Model Encoding
ELG - 150 - 24 A

- Input wiring type:
  Blank:2-wire input for standard model
  3Y:3-wire input for standard model

- Function mode option:
  Io and Vo fixed.
  Io and Vo adjustable through built-in potentiometer.
  3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)
  Io and Vo adjustable through built-in potentiometer &
  3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)
  DALI control technology.
  Built-in Smart timer dimming function by user request.
  Built-in Smart timer dimming and programmable function.
  3 in 1 dimming function and Auxiliary DC output

- Rated output voltage (12/24/36/42/48/54V)
- Rated wattage
- Series name

<table>
<thead>
<tr>
<th>Type</th>
<th>IP Level</th>
<th>Function</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>IP67</td>
<td>Io and Vo fixed.</td>
<td>In Stock</td>
</tr>
<tr>
<td>A</td>
<td>IP65</td>
<td>Io and Vo adjustable through built-in potentiometer.</td>
<td>In Stock</td>
</tr>
<tr>
<td>B</td>
<td>IP67</td>
<td>3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)</td>
<td>In Stock</td>
</tr>
</tbody>
</table>
| AB   | IP65 | Io and Vo adjustable through built-in potentiometer &
  3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance) | In Stock |
| DA   | IP67 | DALI control technology. | In Stock |
| Dx   | IP67 | Built-in Smart timer dimming function by user request. | By request |
| D2   | IP67 | Built-in Smart timer dimming and programmable function. | In Stock |
| BE   | IP67 | 3 in 1 dimming function and Auxiliary DC output | In Stock |
## SPECIFICATION

**model:** ELG-150-12 | ELG-150-24 | ELG-150-36 | ELG-150-48 | ELG-150-54
--- | --- | --- | --- | ---
**DC VOLTAGE** | 12V | 24V | 36V | 42V | 54V
**CONSTANT CURRENT REGION (Note.2)** | 6 ~ 12V | 12 ~ 24V | 18 ~ 36V | 21 ~ 42V | 24 ~ 48V | 27 ~ 54V
**RATED CURRENT** | 10A | 16.25A | 14.17A | 3.37A | 3.13A | 2.8A
**RATED CURRENT (for BE Type only)** | 8A | 5.6A | 3.73A | 3.2A | 2.8A | 2.5A
**RATED POWER** | 100VAC ~ 180VAC | 84W | 105W | 105W | 105W | 105W
| (For All But Type) | 84W | 105W | 105W | 105W | 105W | 105W
| (Except for BE Type) | 120W | 150W | 150W | 150W | 150W | 150W
| (For BE Type only) | 96W | 134.4W | 134.28W | 134.4W | 134.4W | 135W
**RIPPLE & NOISE (max.) (Note.3)** | Adjustable for A/A- B- Type only (via the built-in potentiometer) | Adjustable for A/A-B- Type only (via the built-in potentiometer) | Adjustable for A/B Type only (via the built-in potentiometer) | Adjustable for A/B Type only (via the built-in potentiometer) | Adjustable for A/B Type only (via the built-in potentiometer) | Adjustable for A/B Type only (via the built-in potentiometer)
**VOLTAGE ADJ. RANGE** | 10.8 ~ 13.2V | 21.6 ~ 24.6V | 32.4 ~ 39.6V | 37.8 ~ 46.2V | 43.2 ~ 52.8V | 49 ~ 58V
**CURRENT ADJ. RANGE** | 5 ~ 10A | 1.2 ~ 4.25A | 2.1 ~ 4.17A | 1.8 ~ 3.57A | 1.56 ~ 3.13A | 1.4 ~ 2.8A
**VOLTAGE TOLERANCE** | ±3% | ±3% | ±2.5% | ±2.5% | ±2.5% | ±2.5%
**LINE REGULATION** | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5%
**LOAD REGULATION** | ±2.0% | ±1.0% | ±1.0% | ±0.5% | ±0.5% | ±0.5%
**AXIAL DC OUTPUT** | Nominal 15v/(deviation 15V @ 3A for BE-Type only)
**SETUP, RISE TIME (Note.4)** | 1600ms, 80ms/115VAC | 500ms, 100ms/230VAC
**HOLD UP TIME (Typ.)** | 10ms/115VAC, 230VAC
**VOLTAGE RANGE** | 100 ~ 305VAC | 142 ~ 431VDC
**FREQUENCY RANGE** | 47 ~ 61Hz
**POWER FACTOR** | PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF ≥ 0.92/277VAC @ full load
**TOTAL HARMONIC DISTORTION** | THD: 20% @ load=50% / 115VAC; @ load=260% / 230VAC; @ load=275% / 277VAC
**EFFICIENCY (Typ.)** | 88% | 89% | 90% | 90% | 90% | 91%
**EFFICIENCY (Typ. for BE Type only)** | 86% | 87% | 88% | 88% | 88% | 89%
**AC CURRENT** | 1.7A / 115VAC | 0.9A / 230VAC | 0.7A / 277VAC
**INRUSH CURRENT (Typ.)** | COLD START 65A (width=550us measured at 50% peak) at 230VAC, Per NEMA 410
**MAX. No. of PSUs on 16A CIRCUIT BREAKER** | 3 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC
**LEAKAGE CURRENT** | < 0.75mA / 277VAC
**NO LOAD / STANDBY POWER CONSUMPTION** | No load power consumption < 0.5W for Blank / A / D / D2- Type
**OVER CURRENT** | 95 ~ 105%
**SHORT CIRCUIT** | Hiccup mode, recovers automatically after fault condition is removed
**OVER VOLTAGE** | 14 ~ 18V | 28 ~ 34V | 41 ~ 48V | 47 ~ 54V | 54 ~ 62V | 59 ~ 68V
**OVER TEMPERATURE** | Shut down output voltage, re-power on to recover
**WORKING TEMP.** | TaS: 40 ~ 90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)
**MAX. CASE TEMP.** | TaS: 90°C
**WORKING HUMIDITY** | 20 ~ 95% RH non-condensing
**STORAGE TEMP., HUMIDITY** | -40 ~ +80°C, 10 ~ 95% RH
**TEMP. COEFFICIENT** | ±0.03%/°C (0 ~ 60°C)
**VIBRATION** | 10 ~ 500Hz, 5G, 12k/min, cycle period for 72min. each along X, Y, Z axes
**SAFETY & EMC**
**SAFETY STANDARDS** | UL60950/Type H/L (except for BE-Type), CSA C22.2 No. 250.13-12; IEC/EN/AS/NZS 61347-1, IEC/EN/AS/NZS 61347-2-13 independent, EN62388, BIS 15895 (for 12/12A/24/42A/24/2/424/2/42A/24/24A/42/4A/4A/4A only), EAC, TBT C004, GB19510.1, GB19510.4, IP65 or IP67, KC61347-1, KC61347-2, 13 approved GB19510.1, GB19510.14; GB17743:2007; GB17625.1
**DALI STANDARDS** | Compliance to IEC61960-101-2007 (by request) for DA Type only
**WITHSTAND VOLTAGE** | U/P-O/P 3.75VAC | U/F-G 2.0VAC | U/P-F 1.5VAC
**ISOLATION RESISTANCE** | U/P-O/P, U/P-G, U/P-F 100M Ohms / 500VDC (25°C) / 75% RH
**EMC EMISSION** | Compliance to EN55015, EN61000-3-2, Class C [ @ load: 60% ]; EN61000-3-3, GB17743, GB17625, EAC, TBT C020, KC KN15, KN15K4, 8A
**EMC IMMUNITY** | Compliance to EN61000-4-2, 3, 4, 8, 11, 15; light industry level (surge immunity Lin-Earth 8V, Line-Line 8V, EAC, TBT C020, KC KN15, KN15K4
**MTBF** | 899.8K hrs min. Télécord SR-332 (Belcore) 313.69Khrs min. MIL-HDBK-217F (25°C)
**DIMENSION** | 219*33*35.5mm (L*W*H)
**PACKING** | 0.95kg × 16pcs/16.0kg/0.77CUFT
**NOTE**
1. All parameters NOT specially measured are measured at 230VAC input, rated current and 25˚C of ambient temperature.
2. Please refer to "DRIVING METHODS OF LED MODULE" for DA-Type, Constant Current region is 60%~100% of maximum voltage under rated power delivery.
3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
4. Tolerance: includes set up tolerance, line regulation and load regulation.
5. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTICS" sections for details.
6. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
7. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC/EC Directives on the complete installation again.
8. This series meets the typical life expectancy of >50,000 hours of operation when TaS, particularly G°C (point or TEMP, per DLCD), is about 80°C or less.
10. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m (6500ft).
11. For any application note 9th water proof function installation caution, please refer our user manual before using.

Website: https://www.meanwell.com/Upload/PDF/LED_EN.pdf
84~150W Constant Voltage + Constant Current LED Driver  **ELG-150** series

**Block Diagram**

- **Detector Circuit**
- **PWM & PFC Circuit**
- **Rectifiers & Filter**
- **PWM & PFC Control**
- **O.V.P.**
- **O.L.P.**
- **CASE: Protective Earth**

- **PFC fosc:** 50~120KHz
- **PWM fosc:** 60~130KHz

**DRIVING METHODS OF LED MODULE**

※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

Should there be any compatibility issues, please contact MEAN WELL.

Typical output current normalized by rated current (%)

(A) Constant Voltage area
(B) Constant Current area
(C) Hiccup Protection

This characteristic applies to Blank/A/B/AB/DX/D2/BE-Type,
For DA-Type, the Constant Current area is 60%~100% Vo.
**DIMMING OPERATION**

- **3 in 1 dimming function (for B/AB-Type)**
  - Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
  - 0 ~ 10VDC, or 10V PWM signal or resistance.
  - Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
  - Dimming source current from power supply: 100μA (typ.)

1. **Applying additive 0 ~ 10VDC**
   
   ![Additive Voltage](image)
   
   *DO NOT connect "DIM- to Vo-*

2. **Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):**
   
   ![Additive PWM signal](image)
   
   *DO NOT connect "DIM- to Vo-*

3. **Applying additive resistance:**
   
   ![Additive Resistance](image)
   
   *DO NOT connect "DIM- to Vo-*

**Note:**
1. Min. dimming level is about 8% and the output current is not defined when 0%< Iout<8%.
2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.
**DALI Interface (primary side; for DA-Type)**
- Apply DALI signal between DA+ and DA-.
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 8% of output.

**Smart timer dimming function (for Dxx-Type by User definition)**
MEAN WELL Smart timer dimming primarily provides the adaptive proportion dimming profile for the output constant current level to perform up to 14 consecutive hours. 3 dimming profiles hereunder are defined accounting for the most frequently seen applications. If other options may be needed, please contact MEAN WELL for details.

Ex: ◎ D01-Type: the profile recommended for residential lighting

<table>
<thead>
<tr>
<th>TIME</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
<td>100%</td>
<td>70%</td>
<td>50%</td>
<td>70%</td>
</tr>
</tbody>
</table>

**EX: D02-Type: the profile recommended for street lighting**

<table>
<thead>
<tr>
<th>TIME</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
<td>50%</td>
<td>80%</td>
<td>100%</td>
<td>60%</td>
<td>80%</td>
</tr>
</tbody>
</table>

**TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.**

Example: If a residential lighting application adopts D01-Type, when turning on the power supply at 6:00pm, for instance:

1. The power supply will switch to the constant current level at 100% starting from 6:00pm.
2. The power supply will switch to the constant current level at 70% in turn, starting from 0:00am, which is 06:00 after the power supply turns on.
3. The power supply will switch to the constant current level at 50% in turn, starting from 1:00am, which is 07:00 after the power supply turns on.
4. The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.

The constant current level remains till 8:00am, which is 14:00 after the power supply turns on.

Example: If a street lighting application adopts D02-Type, when turning on the power supply at 5:00pm, for instance:

1. The power supply will switch to the constant current level at 50% starting from 5:00pm.
2. The power supply will switch to the constant current level at 80% in turn, starting from 6:00pm, which is 01:00 after the power supply turns on.
3. The power supply will switch to the constant current level at 100% in turn, starting from 8:00pm, which is 03:00 after the power supply turns on.
4. The power supply will switch to the constant current level at 60% in turn, starting from 1:00am, which is 08:00 after the power supply turns on.
5. The power supply will switch to the constant current level at 80% in turn, starting from 4:00am, which is 11:00 after the power supply turns on. The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.
Ex: D03-Type: the profile recommended for tunnel lighting

Set up for D03-Type in Smart timer dimming software program:

<table>
<thead>
<tr>
<th>TIME**</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:30</td>
<td></td>
<td>11:00</td>
<td></td>
</tr>
<tr>
<td>LEVEL**</td>
<td>70%</td>
<td>100%</td>
<td>70%</td>
</tr>
</tbody>
</table>

**: TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.
Example: If a tunnel lighting application adopts D03-Type, when turning on the power supply at 4:30pm, for instance:

[1] The power supply will switch to the constant current level at 70% starting from 4:30pm.
[2] The power supply will switch to the constant current level at 100% in turn, starting from 6:00pm, which is 01:30 after the power supply turns on.
[3] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.

The constant current level remains till 8:30am, which is 14:00 after the power supply turns on.
**OUTPUT LOAD vs TEMPERATURE (Note.9)**

- AMBIENT TEMPERATURE, \( T_a \) (°C)
- Tcase (°C)

230VAC input only (for BE Type)

**STATIC CHARACTERISTIC**

- INPUT VOLTAGE (V) 60Hz
- LOAD (%)

**POWER FACTOR (PF) CHARACTERISTIC**

- Tcase at 80°C

**TOTAL HARMONIC DISTORTION (THD)**

- 54V Model, Tcase at 80°C

**EFFICIENCY vs LOAD**

ELG-150 series possess superior working efficiency that up to 91% can be reached in field applications.

- 54V Model, Tcase at 80°C
84~150W Constant Voltage + Constant Current LED Driver

ELG-150 series

LIFE TIME

T<sub>case</sub> (°C)

LIFETIME(Kh)

0 20 40 60 80 100 120

20 30 40 50 60 70 80 90
**Mechanical Specification**

*Blank-Type*

- **Case No.:** 237A
- **Unit:** mm

![Blank-Type Diagram]

- **Max. Case Temperature:**

*A-Type*

- **Case No.:** 237A
- **Unit:** mm

![A-Type Diagram]

- **Max. Case Temperature:**

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**File Name:** ELG-150-SPEC 2020-04-08
ELG-150 Series

84~150W Constant Voltage + Constant Current LED Driver

Max. Case Temperature: tc

※ AB-Type

※ B/DA/D2-Type

UL2517 20AWGx2C

SJOW 17AWGx2C

&05RN-F 1.0mm²

AC/N(Blue)
AC/L(Brown)

DIM+(Blue)
DIM-(White)
Vo+(Red)
Vo-(Black)

Vo+(Red)
Vo-(Black)

4.5
45.8
63
35
35.5

File Name: ELG-150-SPEC 2020-04-08
**BE-Type**

![Diagram of BE-Type ELG-150 series driver](image)

- **Max. Case Temperature**: *

**3Y Model (3-wire input)**

![Diagram of 3Y Model ELG-150 series driver](image)

- **Max. Case Temperature**: *

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- **Note1**: Please connect the case to PE for the complete EMC deliverance and safety use.
- **Note2**: Please contact MEAN WELL for input wiring option with PE.

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**INSTALLATION MANUAL**